

Applicant : Jian Bai, Steven M. Fischer and J. Michael Flanagan  
Appl. No. : 10/806,908  
Examiner : Paul M. Gurzo  
Docket No. : 10980322-7 (12089.4006)

IN THE CLAIMS:

Please cancel claim 36 and amend claims 34, 37, 40, 43, 48-54 as follows:

1-33. (Cancelled)

34. (Currently Amended) An ionization source for mass spectrometry comprising:

an ionization enclosure comprising means for maintaining the enclosure at a pressure greater than 100 m Torr and means for containing an analyte in a matrix within the enclosure ~~at an ambient pressure of the enclosure~~;

a pulsed laser positioned to direct laser energy onto the matrix within the ionization enclosure, wherein the laser energy is at a wavelength absorbed by the matrix and yields simultaneous desorption and ionization of the analyte; and

means for ~~directing analyte ions away from the matrix~~ moving ions to a passageway, ~~wherein the passageway is configured to permit cooled analyte ions to enter the passageway that connects the ionization enclosure and a mass analyzer.~~

35. (Previously Presented) The ionization source of claim 34 wherein a flowing liquid sample comprises the analyte and the matrix.

36. (Cancelled) The ionization source of claim 35 wherein the flowing liquid sample comprises the analyte and the matrix.

37. (Currently Amended) The ionization source of claim 35 wherein the flowing liquid sample is ~~the~~ effluent from an HPLC, CE, or syringe pump.

38. (Previously Presented) The ionization source of claim 34 wherein the matrix is static.

39. (Previously Presented) The ionization source of claim 34 wherein the matrix and a sample are located on a holder within the ionization enclosure.

40. (Currently Amended) The ionization source of claim 34 wherein the analyte ~~in the sample~~ is selected from the group consisting of DNA, RNA, lipid, peptide, protein, and carbohydrate, ~~or~~ fragments thereof, and combinations thereof.

41. (Previously Presented) The ionization source of claim 40 wherein the protein is digested.

42. (Previously Presented) The ionization source of claim 39 wherein the holder is selected from the group consisting of a surface, a microtitre plate, a microchip array,

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a thin-layer chromatography plates, an electrophoresis gel, and a membrane, and combinations thereof.

43. (Currently Amended) The ionization source of claim 38 wherein the analyte contained in the static matrix is selected from the group consisting of DNA, RNA, lipids, peptides, protein, ~~and~~ carbohydrates, fragments thereof, and combinations thereof.

44. (Previously Presented) The ionization source of claim 43 wherein the protein is digested.

45. (Previously Presented) The ionization source of claim 34 wherein the pressure greater than 100 mTorr is selected from the group consisting of between 100 mTorr and 1 Torr, between 1 Torr and 760 Torr, between 1 Torr and 100 Torr, and between 100 m Torr and 760 Torr.

46. (Previously Presented) The ionization source of claim 34 wherein the ionization enclosure contains an introduced gas selected from the group consisting of helium, nitrogen, argon, oxygen and carbon dioxide.

47. (Previously Presented) The ionization source of claim 34 where the ionization source operates between -20°C and 100°C.

48. (Currently Amended) The ionization source of claim 34 wherein the pulsed laser ~~source~~ includes means associated with the ionization enclosure for directing the laser onto the matrix.

49. (Currently Amended) The ionization source of claim ~~34~~ 3447 where the means for moving ~~directing~~ analyte ions to the passageway comprises a potential gradient.

50. (Currently Amended) The ionization source of claim 34 wherein the means for moving ~~directing~~ analyte ions away from the matrix to the passageway comprises of a gas flow.

51. (Currently Amended) The ionization source of claim 34 further comprising the passageway integrally connected to the ionization source for delivering cooled analyte ions to the mass analyzer wherein the passageway comprises an ion transport guide.

52. (Currently Amended) The ionization source of claim ~~51~~ 510 wherein the ion transport guide comprises ~~includes at least one~~ ion optics selected from the group consisting of a multipole ~~multiple~~ ion guide, an orifice, a capillary, a skimmer, and a lens, and combinations thereof.

53. (Currently Amended) The ionization source of claim 50 wherein the passageway is integrally connected to ~~both~~ the ambient pressure of the ionization enclosure ~~source~~ and a vacuum of the mass analyzer.

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54. (Currently Amended) The ionization source of claim 53 wherein the mass analyzer is selected from the group consisting of ion trap, quadrupole, ion cyclotron resonance, Fourier transform ion cyclotron resource, magnetic sector, electric sector analyzers, and quadrupole time of flight analyzers, and combinations thereof.

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Should the Examiner have any questions or comments, he is invited to call the representative of Applicant at 949/567-6700.

The Commissioner is authorized to charge any fee which may be required in connection with this Amendment to deposit account No. 50-1078.

Respectfully submitted,

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